# OWNERS MANUAL, SE120ST SCREAMIN' EAGLE CRATE ENGINE

## GENERAL

### Kit Number

19221-15

### Models

For model fitment information, see the P&A retail catalog or the Parts and Accessories section of www.harley-davidson.com (English only).

*NOTES*

- *Replacement engines must be refitted with emission control devices and systems appropriate for the vehicle model and model year in order to verify emissions compliance. Failure to do so constitutes tampering under USA EPA guidelines, which can lead to substantial fines and penalties.*
- *Legal for use on public roads only when installed in the specified models. Not legal for use on public roads when installed in models other than the ones specified. Not eligible for the P&A 24-month warranty. This engine does include a one-year warranty when installed in appropriate models as specified with appropriate compliant calibration download to ECM. Contact a Harley-Davidson dealer for warranty statement.*
- ***For 2016 Models:** A new production information label **(EO: M-005-0220)** is required. Locate the VIN label on the frame tube below the handlebars. Place the new product information label below the VIN label on the frame tube of the vehicle.*

  *The partial emissions label with **Engine Family: GHDXC1.96AEG** included in this kit is a requirement for emissions regulations for **2016** models. Locate the emissions label on the frame tube below the handlebars. Install the partial label from this kit over the **top portion** of the label on the vehicle.*
- ***For 2015 Models:** A new production information label **(EO: M-005-0208)** is required. Locate the VIN label on the frame tube below the handlebars. Place the new product information label below the VIN label on the frame tube of the vehicle.*

  *The partial emissions label with **Engine Family: FHDXC1.96AEG** included in this kit is a requirement for emissions regulations for **2015** models. Locate the emissions label on the frame tube below the handlebars. Install the partial label from this kit over the **top portion** of the label on the vehicle.*
- ***For 2010-2014 Models:** A new production information label **(EO: D-338-81)** is required. Locate the VIN label on the frame tube below the handlebars. Place the new product information label below the VIN label on the frame tube of the vehicle.*

### Warranty Statement

See the vehicle Owner's Manual for Emissions Warranty information.

See a Harley-Davidson dealer for a copy of the Harley-Davidson Street Performance Crate Engine Limited Warranty: 12 Months/Unlimited Mileage.

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### Installation Requirements

- **Recommended synthetic engine oil:** Screamin' Eagle SYN3® 20W50 (Part No. 99824-03/00QT).
- **2010 Touring Models:** Installation of SE High Capacity Compensator Kit (Part No. 40274-08A) is **required** for installation of this engine.
- A clutch kit that supports a minimum of 140 ft-lbs (190 Nm) of torque is required. Harley-Davidson recommends installation of a Screamin' Eagle pressure clutch (Part No. 37000121) and diaphragm spring (Part No. 37951-98).
- A Screamin' Eagle exhaust gasket kit (Part No. 17048-98) is needed.
- An oil cooler is recommended. See the P&A retail catalog or the Parts and Accessories section of www.harley-davidson.com.
- A download using Digital Technician. See a Harley-Davidson dealer.
- See the service manual for special tools required to install this kit.

**⚠WARNING**

**The rider's safety depends upon the correct installation of this kit. Use the appropriate service manual procedures. If the procedure is not within your capabilities or you do not have the correct tools, have a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00333a)**

*NOTE*

*This instruction sheet refers to service manual information. A service manual for this year/model motorcycle is required for this installation. One is available from a Harley-Davidson dealer.*

### Kit Contents

See:

- Figure 5 and Table 13,
- Figure 6 and Table 14,
- Figure 7 and Table 15,
- Figure 8 and Table 16,
- Figure 9 and Table 17,
- Figure 10 and Table 18,
- Figure 11 and Table 19.

## PREPARATION

1. Position the motorcycle on a suitable lift.

**⚠WARNING**

**When servicing the fuel system, do not smoke or allow open flame or sparks in the vicinity. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00330a)**

**⚠WARNING**

**To prevent spray of fuel, purge system of high-pressure fuel before supply line is disconnected. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00275a)**

2. See the service manual to perform the following steps:
   a. Remove seat.
   b. Purge and disconnect fuel supply line.

**⚠WARNING**

**To prevent accidental vehicle start-up, which could cause death or serious injury, remove main fuse before proceeding. (00251b)**

*NOTE*

- ***WITH security siren:*** *With security fob present, turn ignition switch ON. See the service manual. Disarm security system.* ***IMMEDIATELY*** *remove main fuse.*
- ***WITHOUT security siren:*** *See the service manual. Remove main fuse.*

**ALL models:**

3. See the service manual to perform the following steps:
   a. Remove instrument console (if present) from fuel tank.
   b. Remove fuel tank.
4. Raise the motorcycle.

## REMOVAL

### Current Engine Removal

1. Remove engine from chassis. Refer to ENGINE section of service manual.

## SE120ST ENGINE INSTALLATION

1. Before installing the engine, make sure that there is no debris or contaminates in the oiling system.
   Have the oil pan flushed out by a Harley-Davidson dealer or qualified technician.
2. Remove the oil passage caps or plugs at the engine to transmission interface.
3. See the ENGINE section of the service manual. Install the engine to the chassis.
4. **2010 Touring Models:** Install a Screamin' Eagle High Capacity Compensator Kit (Part No. 40274-08A, purchased separately), following instructions from **that** kit.
   **2011-Later Touring Models:** Install the original equipment (OE) compensator per service manual instructions.
5. Install throttle body and high flow injectors following instructions in **this** kit.

## COMPLETION

6. Install fuel tank. See the service manual.
7. See the service manual. Install main fuse.
8. Install seat. See the service manual. After installing seat, pull up on the seat to be sure it is secure.

***NOTICE***

**You must recalibrate the ECM when installing this kit. Failure to properly recalibrate the ECM can result in severe engine damage. (00399b)**

9. Download the new ECM calibration when installing this kit. Refer to the Screamin' Eagle Pro Catalog or contact a Harley-Davidson dealer.
10. Start and run the engine. Repeat several times to verify proper operation.

## OPERATION

Refer to BREAK-IN RIDING RULES in the vehicle owner's manual to break in the new engine.

## MAINTENANCE

1. Refer to the MAINTENANCE SCHEDULE in the vehicle service manual or owner's manual.
2. Refer to ENGINE section of service manual for proper service procedures.

## SE120ST ENGINE SPECIFICATIONS

*NOTE*

*The following sections provide unique information not available in the service manual ENGINE section for the Twin Cam 103™ alpha engines from Touring platforms.*

**Table 2. Engine: Screamin' Eagle Twin Cam SE120ST**

| Item | Specification | |
|---|---|---|
| Compression Ratio | 10.5:1 | |
| Bore | 4.060 in | 103.12 mm |
| Stroke | 4.625 in | 117.48 mm |
| Displacement | 119.75 cu in | 1962.39 cc |
| Lubrication system | Pressurized dry sump with oil cooler | |

## MANUFACTURING TOLERANCES

Refer to the Twin Cam 103™ specifications in the service manual for any specification not shown in the following tables.

**Table 3. Cylinder Heads**

| ITEM | IN. | MM |
|---|---|---|
| Valve guide in head (tight) | 0.0020-0.0033 | 0.051-0.084 |
| Intake valve seat in head (tight) | 0.004-0.0055 | 0.102-0.140 |
| Exhaust valve seat in head (tight) | 0.004-0.0055 | 0.102-0.140 |

**Table 4. Valves**

| ITEM | IN. | MM |
|---|---|---|
| Fit in guide (intake and exhaust) | 0.0011-0.0029 | 0.028-0.074 |
| Seat width | 0.034-0.062 | 0.86-1.57 |
| Stem protrusion from cylinder head boss | 1.990-2.024 | 50.55-51.41 |

**Table 5. Valve Spring Specifications**

| ITEM | PRESSURE | DIMENSION |
|---|---|---|
| Closed | 180 lbs (79 kg) | 1.800 in. (45.7 mm) |
| Open | 500 lbs (196 kg) | 1.177 in. (29.9 mm) |
| Free length | n/a | 2.210 in. (56.1 mm) |

**Table 6. Pistons**

| Piston: | Clearance (in.) |
|---|---|
| Piston-to-cylinder fit (Loose) | 0.0026-0.0036 |
| Piston pin fit (Loose) | 0.0003-0.0008 |
| Top Ring End Gap<br>Second Ring End Gap<br>Oil Control Ring Rail Gap | 0.012-0.020<br>0.016-0.024<br>0.008-0.0028 |
| Top Ring Side Clearance<br>Second Ring Side Clearance<br>Oil Control Ring Side Clearance | 0.0010-0.0022<br>0.0010-0.0022<br>0.0003-0.0072 |

**Table 7. Cam Specifications - 259E**

| Intake | Specification |
|---|---|
| Opens | 19° BTDC |
| Closes | 47° ABDC |
| Duration | 246° |
| Maximum Valve Lift | 0.579 in. |
| Valve Lift @ TDC | 0.182 in. |
| **Exhaust** | **Specification** |
| Opens | 58° BBDC |
| Closes | 12° ATDC |
| Duration | 250° |
| Maximum Valve Lift | 0.579 in. |
| Valve Lift @ TDC | 0.155 in. |
| Cam Timing @ 0.053 in. Tappet Lift in Crankshaft Degrees | |

## SERVICE WEAR LIMITS

Use wear limits as guide to part replacement.

*NOTE*

*Refer to the Twin-Cam 103™ specifications in the service manual for any specification not shown in the following tables*

**Table 8. Cylinders**

| ITEM | REPLACE IF WEAR EXCEEDS | |
|---|---|---|
| | IN. | MM |
| Taper | 0.002 | 0.051 |
| Out of round | 0.002 | 0.051 |
| Warpage of gasket or O-ring surfaces: top | 0.006 | 0.152 |
| Warpage of gasket or O-ring surfaces: base | 0.004 | 0.102 |

**Table 9. Cylinder Bore**

| ITEM | REPLACE IF WEAR EXCEEDS | |
|---|---|---|
| | IN. | MM |
| Standard | 4.062 | 103.17 |
| 0.010 in. oversize | 4.072 | 103.43 |

**Table 10. Pistons**

| Piston-to-cylinder fit (Loose) | Wear Limit (in.) |
|---|---|
| Fit in cylinder (Loose) | 0.0061 |
| Piston Pin Fit (Loose) | 0.0011 |
| Top Ring End Gap<br>Second Ring End Gap<br>Oil Control Ring Rail Gap | 0.030<br>0.034<br>0.038 |
| Top Ring Side Clearance<br>Second Ring Side Clearance<br>Oil Control Ring Side Clearance | 0.0030<br>0.0030<br>0.0079 |

## SE120ST CYLINDERS

### Preparation

1. Position the motorcycle on a suitable lift.

**⚠WARNING**

**When servicing the fuel system, do not smoke or allow open flame or sparks in the vicinity. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00330a)**

**⚠WARNING**

**To prevent spray of fuel, purge system of high-pressure fuel before supply line is disconnected. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00275a)**

2. See the service manual to perform the following steps:
   a. Remove seat.
   b. Purge and disconnect fuel supply line.

**⚠WARNING**

**To prevent accidental vehicle start-up, which could cause death or serious injury, remove main fuse before proceeding. (00251b)**

*NOTE*

- ***WITH security siren:*** *With security fob present, turn ignition switch ON. See the service manual. Disarm security system.* ***IMMEDIATELY*** *remove main fuse.*
- ***WITHOUT security siren:*** *See the service manual. Remove main fuse.*

**ALL models:**

3. See the service manual to perform the following steps:
   a. Remove instrument console (if present) from fuel tank.
   b. Remove fuel tank.
4. Raise the motorcycle.

### Remove Engine Components

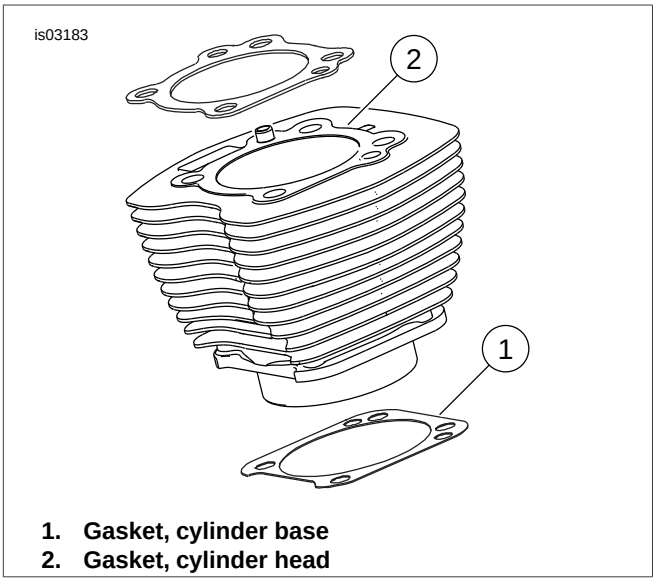
1. See service manual. Remove existing air cleaner assembly.
2. Remove existing exhaust system per the service manual.
3. Disassemble engine top end. Refer to service manual engine sections.

### Install Engine Top End Components

*NOTES*

- *See Figure 1. The 4.060 in (103.1 mm) cylinder base gasket (1) and cylinder head gasket (2) eliminate the need for O-rings. Do not use O-rings on cylinder dowels or cylinder spigots.*
- *When installing new base gasket (1), install with embossed side down and concave side up.*

1. Refer to the service manual. Assemble the engine with the following change:
   a. Assemble the top end of the engine using the base gaskets and head gaskets from the kit. Refer to ENGINE section of service manual.




**1. Gasket, cylinder base**
**2. Gasket, cylinder head**

**Figure 1. Cylinder Gaskets**

### Final Assembly

2. Install fuel tank. See the service manual.
3. See the service manual. Install main fuse.

**⚠WARNING**

**After installing seat, pull upward on seat to be sure it is locked in position. While riding, a loose seat can shift causing loss of control, which could result in death or serious injury. (00070b)**

4. Install seat. See the service manual.

## SE120ST PISTONS

Refer to ENGINE section of service manual.

### Piston Installation

**⚠WARNING**

**To prevent accidental vehicle start-up, which could cause death or serious injury, disconnect battery cables (negative (-) cable first) before proceeding. (00307a)**

**⚠WARNING**

**Disconnect negative (-) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00049a)**

1. See the service manual. Remove seat. Disconnect both battery cables, negative battery cable first. Retain all seat mounting hardware.

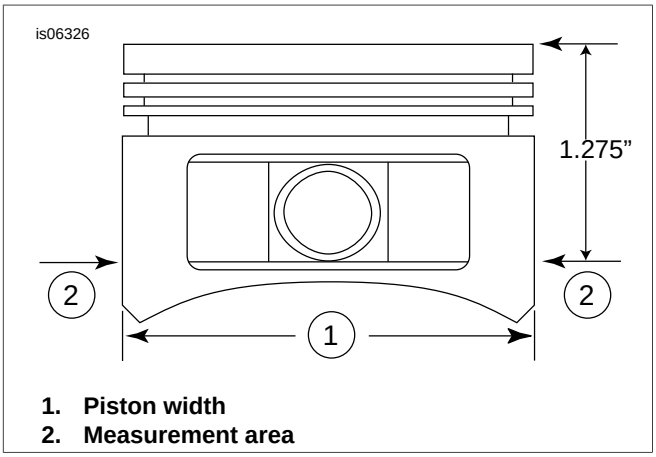
**⚠WARNING**

**When servicing the fuel system, do not smoke or allow open flame or sparks in the vicinity. Gasoline is extremely flammable and highly explosive, which could result in death or serious injury. (00330a)**

2. Refer to the ENGINE: STRIPPING MOTORCYCLE FOR SERVICE and TOP END OVERHAUL, DISASSEMBLY sections of the service manual for cylinder head, cylinder and piston removal procedures.
3. Follow the procedures in the ENGINE: SUB-ASSEMBLY SERVICE AND REPAIR, TOP END/ CYLINDER/ UPPER CONNECTING ROD sections of the service manual for inspection of parts.
4. See the ENGINE: SUB-ASSEMBLY SERVICE AND REPAIR, CYLINDER section of the service manual for boring and honing instructions.

*NOTES*

- *Install the top ring (barrel-faced) and second ring (taper-faced Napier) with the "N" marking facing up. Oil ring rails can be installed either side up.*
- *The 4.060 in (103.1 mm) cylinder base gaskets and cylinder head gaskets included in the kit eliminate the need for O-rings (Part No. 11273).* ***Do not*** *use O-rings on cylinder dowels or cylinder spigots.*
- *When installing new base gasket, install with the embossed side down and the concave side up.*




1. **Piston width**
2. **Measurement area**

**Figure 2. Piston Measurements**

*NOTE*

*Checking piston-to-cylinder fit at this location per Table 11 is for reference.*

5. See Figure 2. Measure the piston width (1), 90 degrees horizontally from both sides of the piston pin hole and 1.275 in (32.38 mm) down from the deck (top) surface of the piston (2). See Table 11 for piston-to-cylinder fit at this location.
6. The pistons in this kit are front and rear specific. Install the piston marked "FRONT" in the front cylinder with the arrow pointing toward the **front** of the engine. Install the piston marked "REAR" in the rear cylinder with the arrow pointing toward the **front** of the engine.
7. Refer to the ENGINE: TOP END OVERHAUL, ASSEMBLY section of the service manual for piston, cylinder and cylinder head installation procedures.

**Table 11. Specifications**

| Piston: | Clearance (in.) |
|---|---|
| Piston-to-cylinder fit (Loose) | 0.0026-0.0036 |
| Piston pin fit (Loose) | 0.0003-0.0008 |
| Top Ring End Gap<br>Second Ring End Gap<br>Oil Control Ring Rail Gap | 0.012-0.020<br>0.016-0.024<br>0.008-0.0028 |
| Top Ring Side Clearance<br>Second Ring Side Clearance<br>Oil Control Ring Side Clearance | 0.0010-0.0022<br>0.0010-0.0022<br>0.0003-0.0072 |

**Table 12. Service Wear Limits**

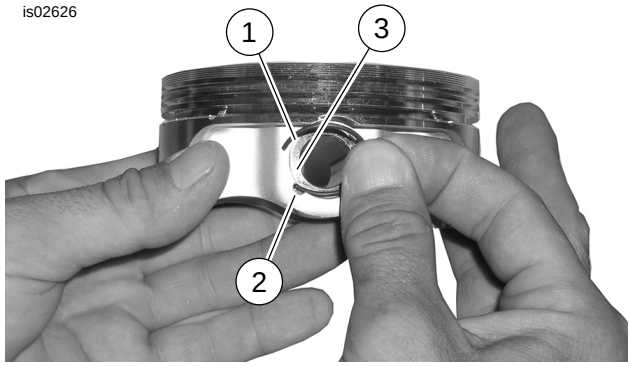
| Piston-to-cylinder fit (Loose) | Wear Limit (in.) |
|---|---|
| Fit in cylinder (Loose) | 0.0061 |
| Piston Pin Fit (Loose) | 0.0011 |
| Top Ring End Gap<br>Second Ring End Gap<br>Oil Control Ring Rail Gap | 0.030<br>0.034<br>0.038 |
| Top Ring Side Clearance<br>Second Ring Side Clearance<br>Oil Control Ring Side Clearance | 0.0030<br>0.0030<br>0.0079 |

### Piston Pin Retaining Ring (Circlip) Installation

*NOTE*

*Circlip gap must be at straight up or straight down position when installed.*

8. See Figure 3. Insert the open end of the circlip (1) into the notch (2) on the groove (3) around the piston pin boss so the gap is at the straight up or straight down position when installed.




**1. Circlip**
**2. Notch**
**3. Groove**

**Figure 3. Circlip and Piston**

**1. Thumb orientation**
**2. Circlip 85% seated**

**Figure 4. Install Circlip**

9. See Figure 4. Position your thumb (1) as shown. Press firmly until approximately 85% of the circlip (2) is seated in the groove.

10. Do not scratch or mar the piston. Use a small-bladed screwdriver to wedge the circlip into the rest of the groove. Repeat for the remaining circlips.

*NOTE*

*Make sure that the piston circlip is fully seated, or ENGINE DAMAGE WILL OCCUR.*

11. Refer to the ENGINE: ASSEMBLING MOTORCYCLE AFTER STRIPPING section of the service manual for final reassembly procedures.

## SERVICE PARTS

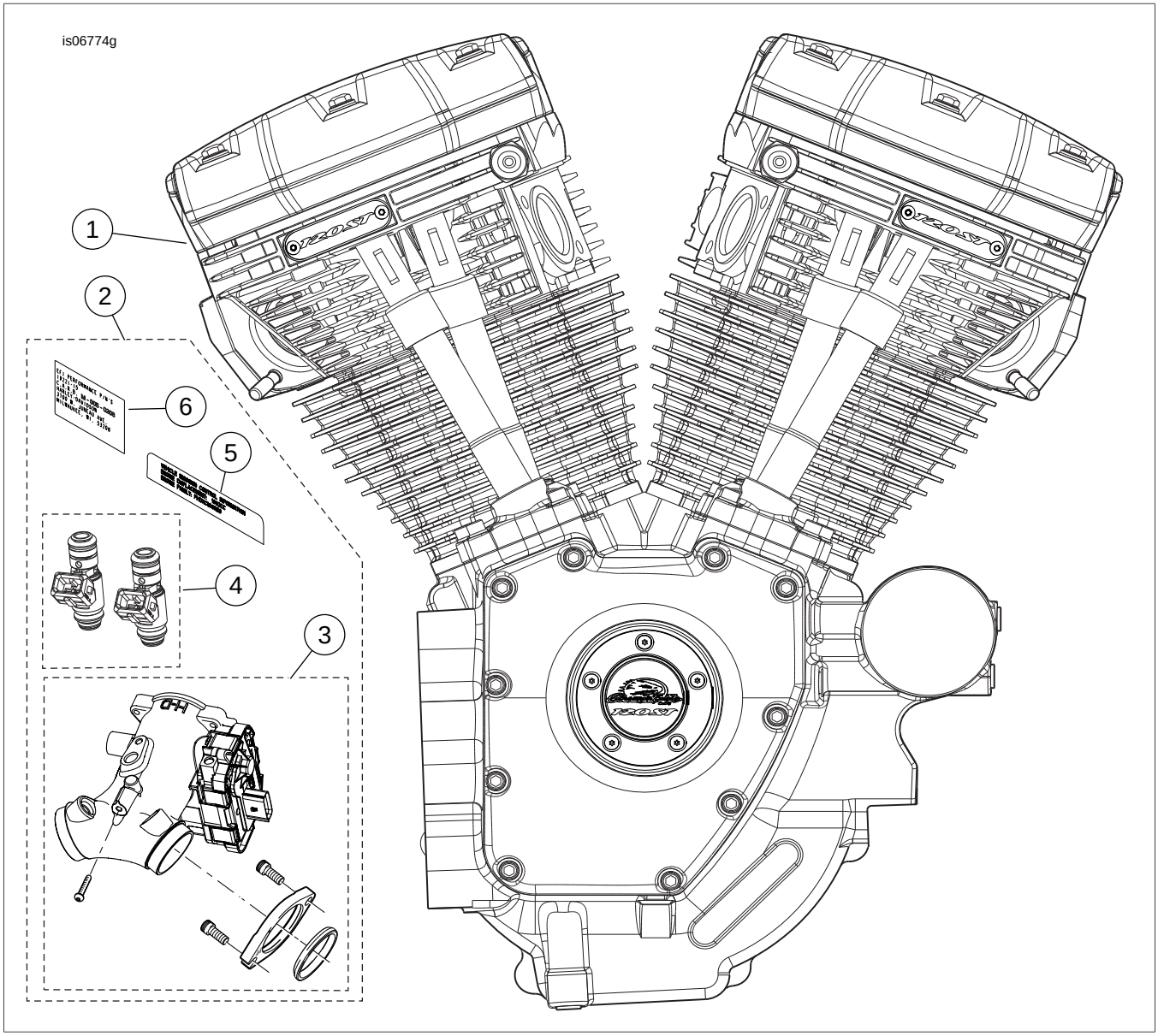



**Figure 5. Engine Assembly, Screamin' Eagle 120ST Crate Engine Complete**

**Table 13. Service Parts, Screamin' Eagle 120ST Crate Engine**

| Item | Description (Quantity) | Part Number |
|---|---|---|
| 1 | Engine assembly, complete | 19221-15 |
| 2 | Induction Module and Hardware Kit (includes items 3-7) | Not sold separately |
| 3 | • Throttle Body Kit, Screamin' Eagle 58 mm | 27713-08 |
| 4 | • Screamin' Eagle High Flow Injector Kit | 27796-08 |
| 5 | • Partial Emission Label (Engine Family **GHDXC1.96AEG**) (required on 2016 models only) | Not sold separately |
| | • Partial Emission Label (Engine Family **FHDXC1.96AEG**) (required on 2015 models only) | Not sold separately |
| 6 | • New Product Information Label, **"M-005-0220"** (required on **2016** models only) | Not sold separately |
| | • New Product Information Label, **"M-005-0208"** (required on **2015** models only) | Not sold separately |
| | • New Product Information Label, **"D-338-81"** (required on **2010-2014** models only) | Not sold separately |

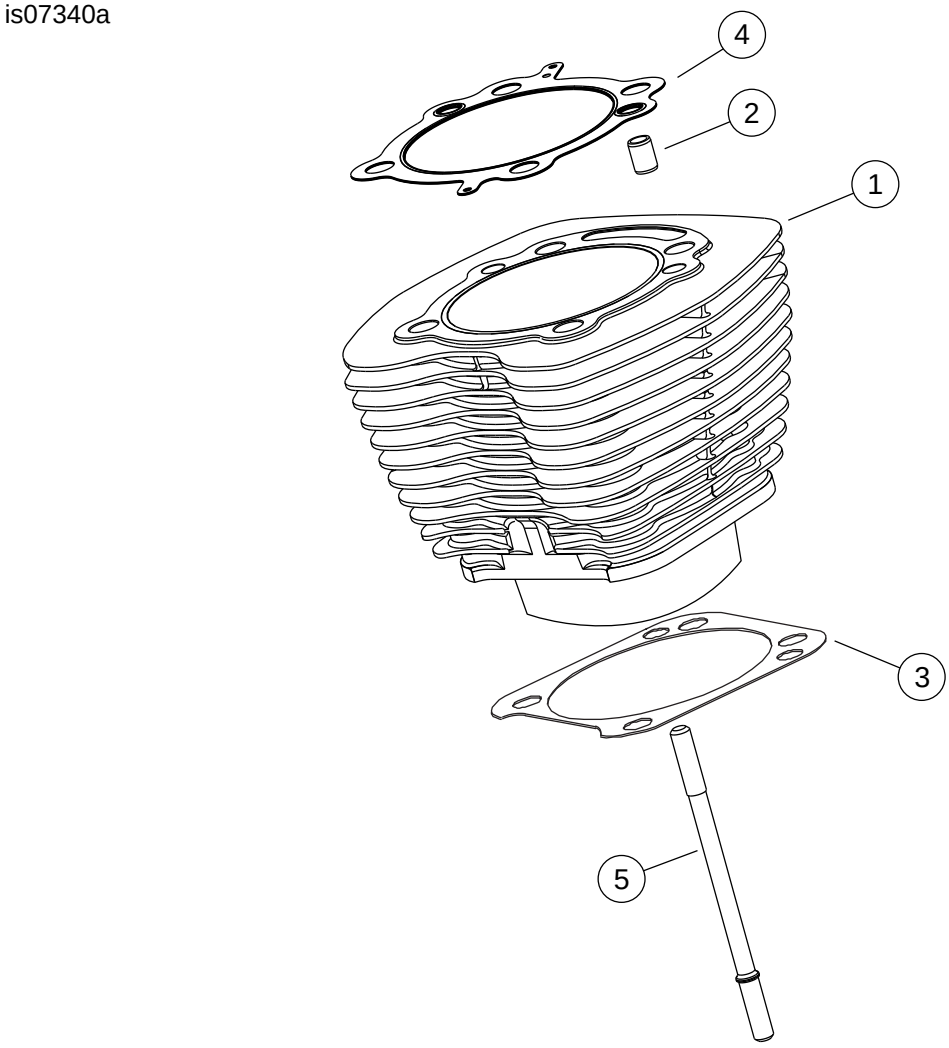



**Figure 6. SE120ST Screamin' Eagle Crate Engine Cylinders**

**Table 14. Service Parts, SE120ST Screamin' Eagle Crate Engine Cylinders**

| Item | Description (Quantity) | Part Number |
|---|---|---|
| 1 | SE cylinder kit, 4.060 in (black). Includes front and rear cylinders, items 2-4, flanged hex head screw (Part No. 1105) and sealing washer (Part No. 1086A). | 16550-04C |
| 2 | • Dowel pin, ring (4) | 16595-99A |
| 3 | • Gasket, cylinder base (2) | 16736-04A |
| 4 | • Gasket, cylinder head (2) | 16104-04 |
| 5 | Stud, cylinder (8) | 16834-99A |
| 6 | Gasket kit, engine overhaul (not shown). DOES NOT include cylinder head gasket, base gasket or valve stem seals. | 17053-99C |
| 7 | Gasket kit, top-end (not shown) DOES NOT include cylinder head gasket, base gasket or valve stem seals. | 17052-99C |

## SERVICE PARTS

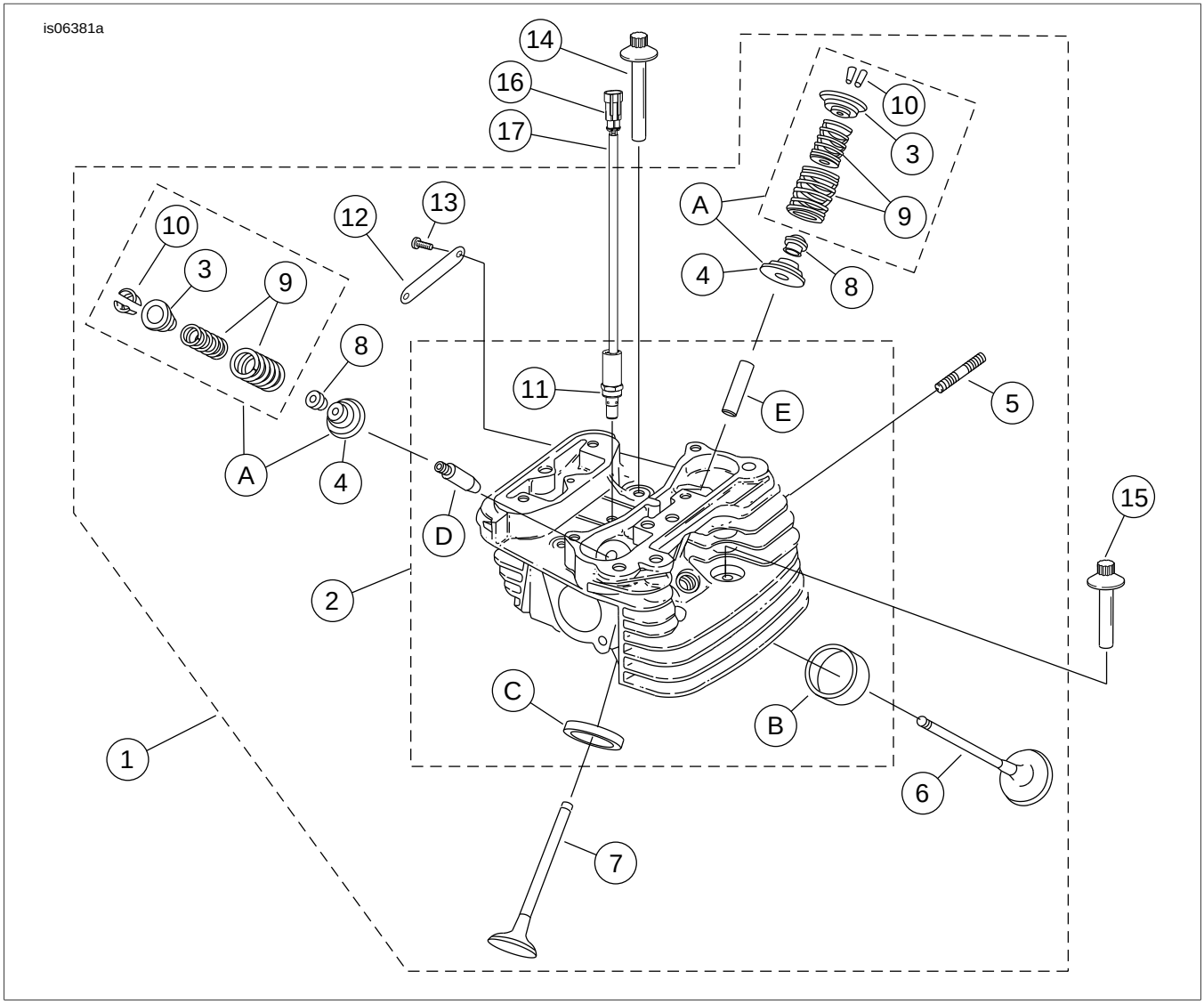



**Figure 7. SE120ST Screamin' Eagle Crate Engine Cylinder Heads and Valves**

## SERVICE PARTS

**Table 15. Service Parts, SE120ST Screamin' Eagle Crate Engine Cylinder Heads and Valves**

| Kit | Item | Description (Quantity) | Part Number |
|---|---|---|---|
| Kit 19221-15 (Crate Engine) | 1 | Cylinder head assembly, rear (includes Items 2-13)<br>Cylinder head assembly, front (includes Items 2-13)<br>**(NOTE: Heads are provided with "120R" medallions installed. Replace with "120ST" medallions (Item 12) and screws (Item 13), purchased separately.)** | 17444-10<br>17443-10 |
| | 2 | • Cylinder head (machined, with items 11, B, C, D and E installed) | Not sold separately |
| | 3 | • Collar, valve spring upper (4). Also included with Item "A". | 18213-10 |
| | 4 | • Collar, valve spring, lower (4). Included with Item "A". | Not sold separately |
| | 5 | • Stud, exhaust port (4) | 16715-83 |
| | 6 | • Intake valve (2) | 18190-08 |
| | 7 | • Exhaust valve (2) | 18183-03 |
| | 8 | • Seal, valve (4) | 18046-98 |
| | 9 | • Valve spring unit (4). Included with Item "A". | Not sold separately |
| | 10 | • Retainer, valve collar (8). Also included with Item "A". | 18240-98 |
| | 11 | • Automatic compression release (2) | 28861-07A |
| | 12 | • Medallion, "120ST" (2) | 14100436 |
| | 13 | • Screw, button head, TORX (4) | 25800017 |
| | 14 | Screw, internal thread, 3.19 in (81.0 mm) long (4) | 16478-85A |
| | 15 | Screw, internal thread, 1.88 in (47.6 mm) long (4) | 16480-92A |
| | 16 | Pin housing, two-way | 72009-05 |
| | 17 | Wire seal, 16-20 AWG (4) | 72011-05 |
| | 18 | Spark plug, Screamin' Eagle (2) (not shown) | 32186-10 |
| **Service Kit:** | | | |
| | A | Valve Spring Kit, Screamin' Eagle (includes Items 3, 4, 9, 10) | 18281-02A |
| **The following Screamin' Eagle parts are available separately:** | | | |
| | B | Valve seat, intake | 18191-08 |
| | C | Valve seat, exhaust | 18048-98A |
| | D | Valve guide, intake (for service) | |
| | | • (+ 0.003 in) | 18158-05 |
| | | • (+ 0.002 in) | 18156-05 |
| | | • (+ 0.001 in) | 18154-05 |
| | E | Valve guide, exhaust (for service) | |
| | | • (+ 0.003 in) | 18157-05 |
| | | • (+ 0.002 in) | 18155-05 |
| | | • (+ 0.001 in) | 18153-05 |

## SERVICE PARTS

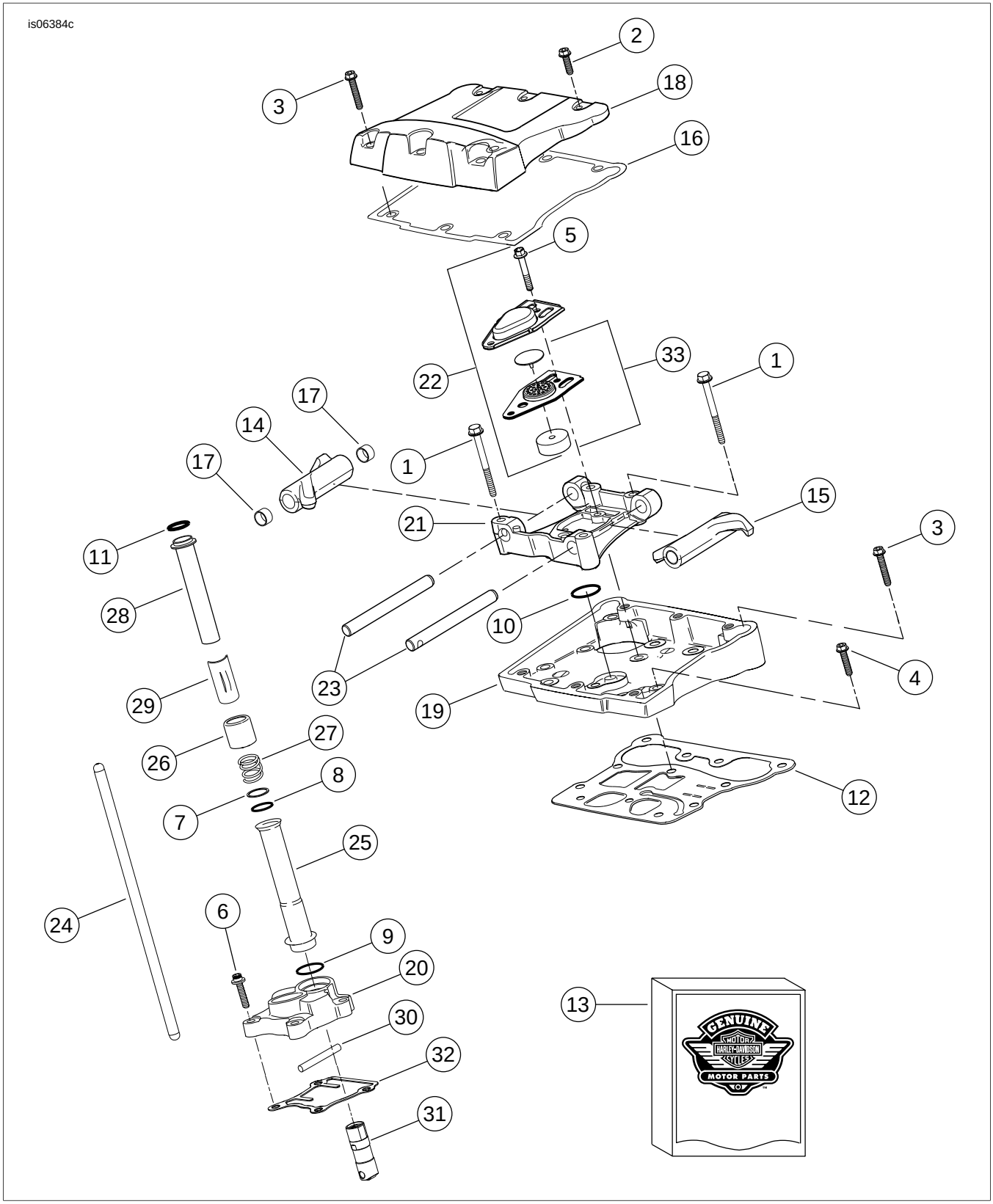



**Figure 8. SE120ST Screamin' Eagle Crate Engine Rocker Arms and Push Rods**

## SERVICE PARTS

**Table 16. Service Parts, SE120ST Screamin' Eagle Crate Engine Rocker Arms and Push Rods**

| Item | Description (Quantity) | Part Number |
|---|---|---|
| 1 | Cap screw, hex flanged head, 5/16-18 x 2.5 in (63.5 mm), Grade 8 with lock patch (8) | 1039 |
| 2 | Screw, internal/external hex flanged head, 5/16-18 x 1.0 in (25.4 mm), with lock patch (6) | 3692A |
| 3 | Screw, internal/external hex flanged head, 5/16-18 x 1.75 in (44.4 mm), with lock patch (10) | 3693A |
| 4 | Screw, hex flanged head SEMS, 5/16-18 x 1.25 in (31.8 mm), with lock patch (8) | 3736B |
| 5 | Screw, hex flanged head, 1/4-20 x 1.69 in (42.9 mm), Grade 8, with lock patch, (4) | 4400 |
| 6 | Cap screw, hex socket head, heat treated washer, 1/4-20 x 1.0 in (25.4 mm), lock patch (6) | 4741A |
| 7 | Washer, 0.031 in (0.79 mm) thick (4) | 6762B |
| 8* | O-ring, push rod cover, 0.674 in (17 mm) ID, brown (4) | 11132A |
| 9* | O-ring, push rod cover, 0.862 in (22 mm) ID, brown (4) | 11145A |
| 10* | O-ring, 0.612 in (15.5 mm) ID, black (2) | 11270 |
| 11* | O-ring, 0.671 in (17 mm) ID, yellow (4) | 11293 |
| 12 | Gasket, rocker housing (2) | 16719-99B |
| 13 | Gasket kit, cam service (contains items marked "*") | 17045-99D |
| 14 | Rocker arm (front intake, rear exhaust), with bushings (2) | 17360-83A |
| 15 | Rocker arm (rear intake, front exhaust), with bushings (2) | 17375-83A |
| 16* | Gasket, rocker cover (2) | 17386-99A |
| 17 | Bushing, rocker arm (8) | 17428-57 |
| 18 | Rocker cover, (chrome) (2) | 17572-99 |
| 19 | Rocker housing, (chrome) (2) | 17578-10 |
| 20 | Lifter cover, front (chrome)<br>Lifter cover, rear (chrome) | 17964-99<br>17966-99 |
| 21 | Support, rocker arm (2) | 17594-99 |
| 22* | Breather assembly (2) | 17025-03A |
| 23 | Shaft, rocker arm (4) | 17611-83 |
| 24 | Push rod, exhaust, 10.536 in (26.8 cm) long, with two black stripes at each end (2)<br>Push rod, intake, 10.418 in (26.5 cm) long, with NO stripes (2) | 17922-99<br>17923-99 |
| 25 | Cover, push rod lower (4) | 17939-99 |
| 26 | Retainer, push rod cover spring (4) | 17945-36B |
| 27 | Spring, push rod cover (4) | 17947-36 |
| 28 | Cover, push rod upper (4) | 17948-99 |
| 29 | Keeper, push rod cover (4) | 17968-99 |
| 30 | Pin, anti-rotation (2) | 18535-99 |
| 31 | Hydraulic lifter kit (includes four lifters) | 18572-13 |
| 32* | Gasket, lifter cover (2) | 18635-99B |
| 33 | Baffle assembly, breather (2) | 26500002 |

## SERVICE PARTS

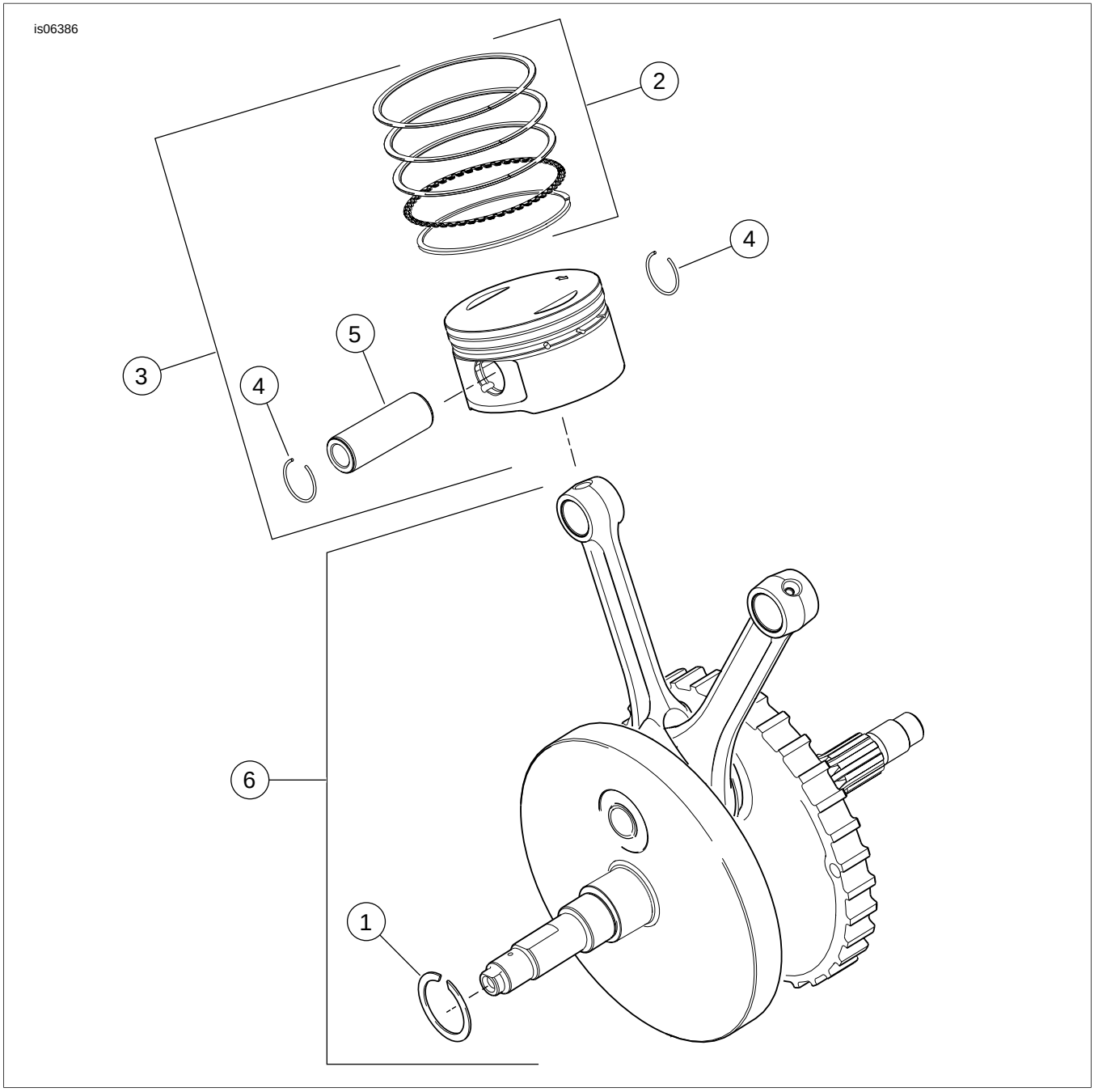



**Figure 9. SE120ST Screamin' Eagle Crate Engine Pistons and Flywheel**

**Table 17. Service Parts, SE120ST Screamin' Eagle Crate Engine Pistons and Flywheel**

| Item | Description (Quantity) | Part Number |
|---|---|---|
| 1 | Retaining ring | 11177A |
| 2 | Piston ring set, standard (2)<br>Piston ring set, 0.010 in (0.254 mm) over size (2) | 22526-10<br>22529-10 |
| 3 | Piston kit, front and rear, with ring sets, piston pin and lock rings, standard<br>Piston kit, front and rear, with ring sets, piston pin and lock rings, 0.010 in (0.254 mm) over size | 22574-10<br>22576-10 |
| 4 | Lock ring, piston pin (4) | 22097-99 |
| 5 | Piston pin (2) | 22310-10 |
| 6 | Flywheel assembly kit | 23893-10A |

## SERVICE PARTS

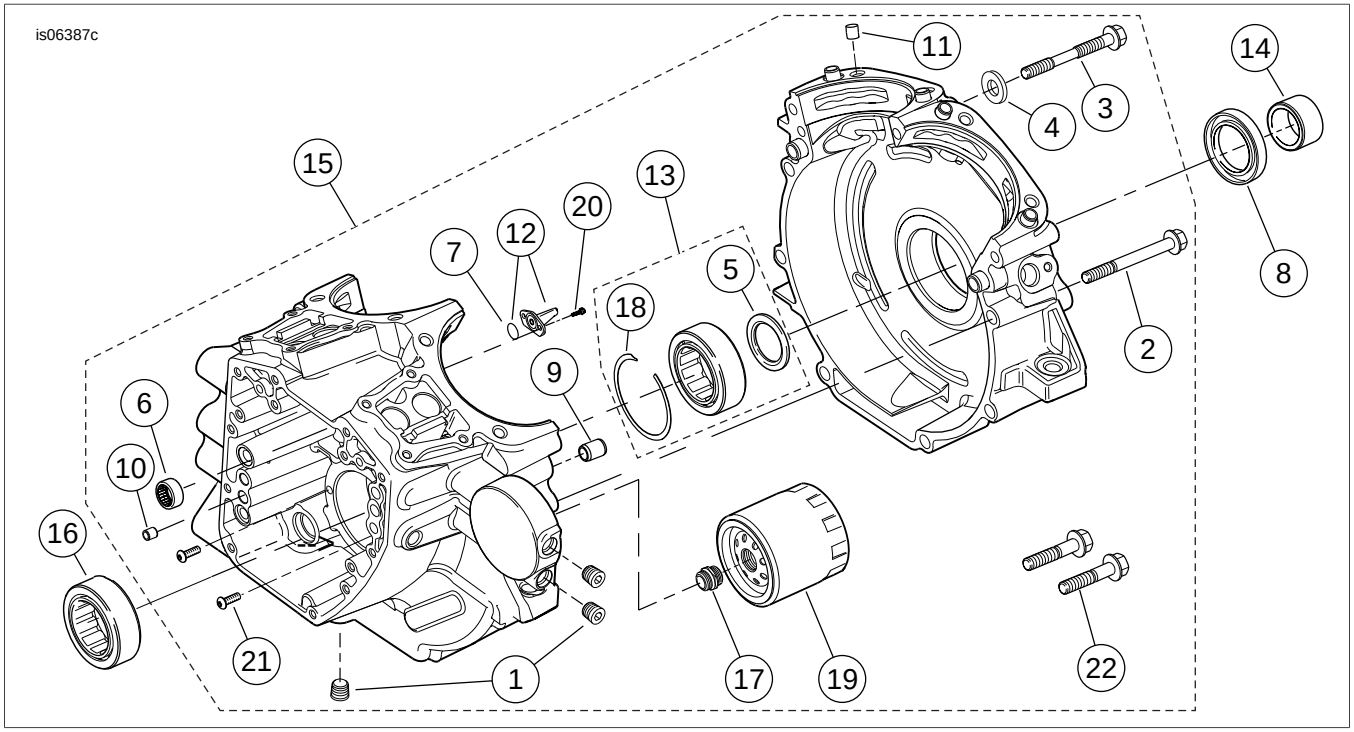



**Figure 10. SE120ST Screamin' Eagle Crate Engine Crankcase, Engine Oil Filter and Cooler**

**Table 18. Service Parts, SE120ST Screamin' Eagle Crate Engine Crankcase, Engine Oil Filter and Cooler**

| Item | Description (Quantity) | Part Number |
|---|---|---|
| 1 | Plug (3) | 765 |
| 2 | Screw, hex flange head, 5/16-18 x 3.0 in (76 mm) long (8) | 895 |
| 3 | Screw, crankcase top center | 1105 |
| 4 | Sealing washer | 1086A |
| 5 | Washer, 1.25 in (31.8 mm) ID x 1.83 in (46.4 mm) OD x 0.12 in (3.18 mm) thick (2). | 8972 |
| 6 | Needle bearing kit, camshaft (2) (Each kit includes two bearing assemblies) | 24018-10 |
| 7 | O-ring (2) | 10930 |
| 8 | Oil seal | 12068 |
| 9 | Dowel pin, 0.557 in (14.158 mm) D x 0.75 in (19 mm) long (2) | 16574-99A |
| 10 | Dowel pin, 0.375 in (9.525 mm) D x 0.40 in (10.16 mm) long (2) | 16589-99A |
| 11 | Dowel pin, 0.436 in (11.074 mm) D x 0.61 in (15.5 mm) long (4) | 16595-99A |
| 12 | Piston cooling jet (2) (includes Item 7) | 22315-06A |
| 13 | Bearing kit, left side (includes item 5, one item 16, item 18 and the bearing inner race) | 24004-03B |
| 14 | Spacer, sprocket shaft | 24009-06 |
| 15 | Crankcase set (black) (includes Items 1, 2, 6, 7, 9, 10, 11, 12, 13, 17, 19, 20, 21 and 22) | 24400057 |
| 16 | Bearing, main (2). One is included in Item 13. | 24605-07 |
| 17 | Adapter, oil filter | 26352-95A |
| 18 | Retaining ring | 35114-02 |
| 19 | Oil filter (chrome) | 63798-99A |
| 20 | Screw, TORX® head, 8-32 x 0.375 in (9.5 mm) long (4) | 68042-99 |
| 21 | Screw, bearing retention, TORX® button head, 1/4-20 x 0.44 in (11.1 mm) long (2) | 703B |
| 22 | Screw, hex flange head, with washer, 3/8-16 x 1.59 in (40.4 mm), Grade 8, with lock patch (2) | 3983 |

## SERVICE PARTS

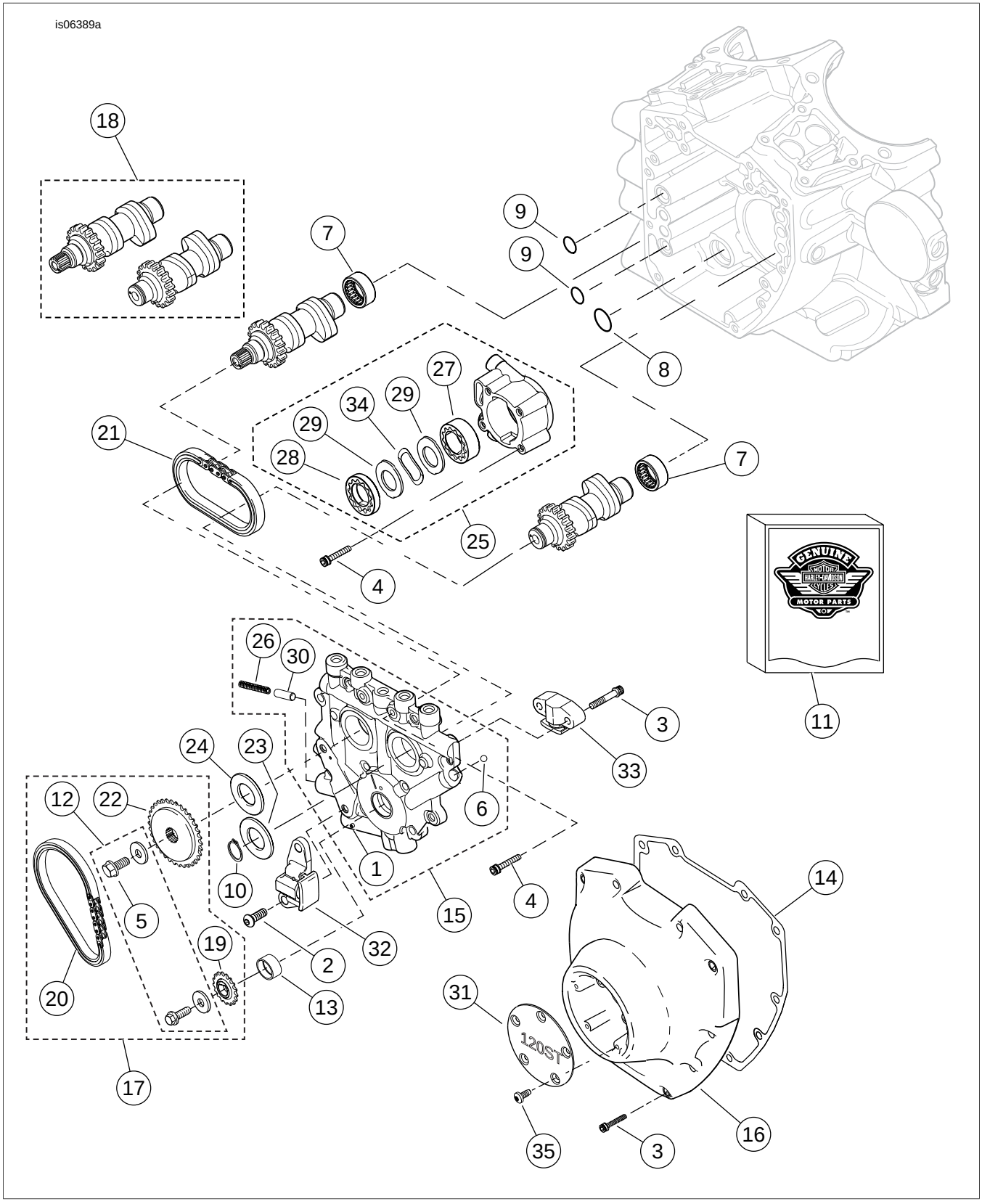



**Figure 11. SE120ST Screamin' Eagle Crate Engine Camshafts and Camshaft Cover**

## SERVICE PARTS

**Table 19. Service Parts, SE120ST Screamin' Eagle Crate Engine Camshafts and Camshaft Cover**

| Item | Description (Quantity) | Part Number |
|---|---|---|
| 1 | Roll pin | 601 |
| 2 | Screw, primary cam chain tensioner (2) | 942 |
| 3 | Screw, cam cover, 1/4-20 x 1.25 in (31.8 mm) long, Grade 8, knurled, with lockpatch (10)<br>Screw, secondary cam tensioner, 1/4-20 x 1.25 in long, Grade 8, knurled, with lockpatch (2) | 4740A<br>4740A |
| 4 | Screw, socket head, 1/4-20 x 1.0 in (25.4 mm) long, with lockpatch (8) | 4741A |
| 5 | Washer, 0.38 in (9.5 mm) ID x 1.13 in (28.6 mm) OD x 0.22 in (5.6 mm) thick | 6294 |
| 6 | Ball (12) | 8873 |
| 7 | Needle bearing kit, camshaft (2) (Each kit includes two bearing assemblies) | 24018-10 |
| 8* | O-ring, 0.671 in (17 mm) ID, yellow | 11293 |
| 9 | O-ring, 0.362 in (9.2 mm) ID, brown (2) | 11301 |
| 10 | Retaining ring | 11461 |
| 11 | Gasket kit, cam service (contains items marked "*" in this table and Table 17) | 17045-99D |
| 12 | Cam drive sprocket retention kit | 25566-06 |
| 13 | Bushing, crankshaft | 25344-99 |
| 14 | Gasket, cam cover | 25244-99A |
| 15 | Cam support plate assembly (includes items 1, 6, 26 and 30) | 25355-06A |
| 16 | Cam cover, (chrome) | 25369-01B |
| 17 | Camshaft chain and fastener kit (includes items 12, 19, 20 and 22) | 25585-06 |
| 18 | Camshaft kit, front and rear, SE259E | 25482-10 |
| 19 | Sprocket, cam drive (on crankshaft), 17 T | 25673-06 |
| 20 | Chain, primary cam drive | 25675-06 |
| 21 | Chain, secondary cam drive | 25683-06 |
| 22 | Sprocket, cam drive, 34 T | 25728-06 |
| 23 | Spacer, cam drive sprocket alignment, 0.100 in (2.54 mm) thick | 25729-06 |
| 24 | Spacer, cam drive sprocket alignment, 0.100 in (2.54 mm) thick (use as required)<br>Spacer, cam drive sprocket alignment, 0.110 in (2.79 mm) thick (use as required)<br>Spacer, cam drive sprocket alignment, 0.120 in (3.05 mm) thick (use as required)<br>Spacer, cam drive sprocket alignment, 0.130 in (3.30 mm) thick (use as required)<br>Spacer, cam drive sprocket alignment, 0.140 in (3.56 mm) thick (use as required)<br>Spacer, cam drive sprocket alignment, 0.150 in (3.81 mm) thick (use as required) | 25729-06<br>25731-06<br>25734-06<br>25736-06<br>25737-06<br>25738-06 |
| 25 | Oil pump assembly (includes items 27-29, 34) | 26037-06 |
| 26 | Spring, relief valve | 26210-99 |
| 27 | Gerotor assembly, scavenge | 26278-06 |
| 28 | Gerotor assembly, pressure | 26281-06 |
| 29 | Separator plate, gerotor (2) | 26282-06 |
| 30 | Relief valve, oil pump | 26400-82B |
| 31 | Cover, timer, "120ST" | 14100437 |
| 32 | Chain tensioner, primary cam drive chain | 39968-06 |
| 33 | Chain tensioner, secondary cam drive chain | 39969-06 |
| 34 | Spring, separator | 40323-00 |
| 35 | Screw, TORX head, 8-32 x 0.38 in (9.5 mm) long (5) | 68042-99 |